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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,893	09/29/2003	Mohammad Hossein Zarrabizadeh	24	1988

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Docket Administrator (Room 3J-219)
Lucent Technologies Inc.
101 Crawfords Corner Road
Holmdel, NJ 07733-3030

EXAMINER

AZARIAN, SEYED H

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/673,893

Applicant(s)

ZARRABIZADEH, MOHAMMAD
HOSSEIN

Examiner

Seyed Azarian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-24, are rejected under 35 U.S.C. 102(b) as being anticipated by Reed et al (U.S. patent 6,590,996).

Regarding claim 1, Reed discloses a method for selecting a chrominance portion of a pixel to be watermarked, said selecting step employing a perception-based table that indicates for each of at least a plurality of possible pixels in a colors pace which, if any, of the chrominance portions should be selected for watermarking (column 1, lines 30-57, the inventions relates to selective color masking of images, for mapping a change in an image attribute such as luminance or chrominance to a change in color components such as that the change is less visible. The mapping process may be implemented with a look up table, where the image sample color values are used to look up a corresponding change in color values. For image s represented as an array of color vectors (color triplets like red, green blue or cyan, magenta and yellow), the look up table may be implemented as a multidimensional look up table with color vectors used to index a corresponding change in the color values of image samples. Also column 2, lines 35-38, it enables the user to **select** the color region by selecting pixels having the desired color in the image to be watermark).

Regarding claim 2, Reed discloses the invention as defined in claim 1 wherein said perception-based table indicates for each entry therein whether to watermark only a first chrominance portion or only a second chrominance portion (column 5, lines 42-54, color image are represented as an array of color vectors in a color space, such as RGB or YUV. The watermark may be embedded in one or more of the color components of an image. In some implementations, the embedded may transfer the input image into a target color space, and then proceed with the embedding process in that color space).

Regarding claim 3, Reed discloses the invention as defined in claim 1 wherein said perception-based table indicates for each entry therein whether to watermark a first chrominance portion, a second chrominance portion, or not to watermark at all (column 7, lines 1-19, the value of the checksum or parity. Of course, if the signal already corresponds to the desire message bit value, it need not be altered. The same approach can be extended to a set of signal sample where some attribute of the set is adjusted as necessary to encode a desire message symbol. These techniques can be applied to signal samples in a transform domain or samples in the temporal or spatial dominos).

Regarding claim 4, Reed discloses the invention as defined in claim 1 wherein said perception-based table is in computer readable form (column 32, lines 48-60, refer to computer-readable, also column 34, lines 50-56, computed and stored in a look up table).

Regarding claim 5, Reed discloses the invention as defined in claim 1 wherein said perception-based table divides an entire color space into regions, at least one of said possible pixels within each said region, and said perception-based table supplies an indication for said pixel based on which region of said perception-based table said pixel falls (column 34, lines 2-9,

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selectively controlling strength of a watermark in certain color region. The following description proposes a framework for selective color masking of a watermark).

Regarding claim 6, Reed discloses the invention as defined in claim 1 wherein said pixel is part of a digital video bit stream represented in UV format and wherein said perception-based table indicates for any pixel to watermark U or V as a function of the Y, U, and V values of said pixel (column 4, lines 11-20, color image has spatial dimensions (horizontal and vertical components), and color space dimensions YUV or RGB), some signal, like vide have spatial and temporal dimension, also column 5, lines 48-55, color image s are represented as an array of color vectors in a color space, such as RGB or YUV. The watermark may be embedded in one or more of the color components of an image).

Regarding claim 7, Reed discloses the invention as defined in claim 1 wherein said pixel is part of a digital video bit stream represented in YUV format, and wherein said selecting step is performed using only said YUV formatted digital bit stream directly and no other version of said digital bit stream formatted in any other format (see claim 6, also column 5, lines 48-54, color image are represented as an array of color vectors in a color space, such as RGB or YUV. The watermark may be embedded in one or more of the color components of an image. In some implementations, the embedded may transform the input image into a target color space, and then proceed with the embedding process in that color space).

Regarding claim 8, Reed discloses the invention as defined in claim 1 wherein said pixel is part of a digital video bit stream represented using a first color space type representation, and wherein, said selecting step is performed using only a digital bit stream formatted in said first color space type representation directly and other color space type representation (column 5,

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lines 48-54, color image are represented as an array of color vectors in a color space, such as RGB or YUV. The watermark may be embedded in one or more of the color components of an image. In some implementations, the embedded may transform the input image into a target color space, and then proceed with the embedding process in that color space).

Regarding claim 9, Reed discloses the invention as defined in claim 1 wherein said pixel is a decimated pixel derived from an original digital video bit stream (column 6, lines 61 through column 7, line 25, combining the water mark with input signal are termed non-linear, such as processes that employ dither modulation, modify least significant bits, or apply quantization (decimated) index modulation, further quantization index modulation techniques employ a set of quantizers).

Regarding claim 10, Reed discloses the invention as defined in claim 1 wherein said pixel is a decimated pixel derived from an original digital video bit stream represented in YUV format (column 5, lines 48-54, color image are represented as an array of color vectors in a color space, such as RGB or YUV. The watermark may be embedded in one or more of the color components of an image. In some implementations, the embedded may transform the input image into a target color space, and then proceed with the embedding process in that color space).

Regarding claim 11, Reed discloses the invention as defined in claim 1 wherein said pixel is a quantized pixel derived from an original digital video bit stream (column 6, lines 61 through column 7, line 25, combining the water mark with input signal are termed non-linear, such as processes that employ dither modulation, modify least significant bits, or apply quantization (decimated) index modulation, further quantization index modulation techniques employ a set of quantizers).

Regarding claim 12, Reed discloses the invention as defined in claim 1 wherein said pixel is a quantized pixel derived from an original digital video bit stream represented in YUV format (column 5, lines 48-54, color image are represented as an array of color vectors in a color space, such as RGB or YUV. The watermark may be embedded in one or more of the color components of an image. In some implementations, the embedded may transform the input image into a target color space, and then proceed with the embedding process in that color space).

Regarding claim 13, Reed discloses the invention as defined in claim 1 wherein said perception-based table contains information to indicate which, if any, of the chrominance portions should be selected for watermarking for each pixel value of the entirety of said color space (column 5, lines 48-54, color image are represented as an array of color vectors in a color space, such as RGB or YUV. The watermark may be embedded in one or more of the color components of an image. In some implementations, the embedded may transform the input image into a target color space, and then proceed with the embedding process in that color space, also column 37, lines 51-62, mapping described in this section may be implemented in a look up table or in a mathematical function evaluated during encoding or decoding operations).

Regarding claim 16, Reed discloses the invention as defined in claim 1 wherein a chrominance portion of said pixel is watermarked by having its value changed to represent the conveyance of additional data other than the original value of said chrominance portion (see Fig. 2, column 8, lines 43-56, in addition to the information conveyed in the message, the embedded may also add control bit values (signature bits) to the message to assist in verifying the accuracy of a read operation).

Regarding claim 17, Reed discloses apparatus for supplying an indication as to which chrominance portion of a pixel of a video signal, if any, is better suited to be altered so as to carry additional watermark information, said apparatus comprising a perception-based table in a computer readable media for at least a portion of the possible pixel color space, said table specifying for pixels that are within said portion of said color space the chrominance portion to be indicated by said apparatus (see claim 1, and column 8, lines 43-56, in addition to the information conveyed in the message, the embedded may also add control bit values (signature bits) to the message to assist in verifying the accuracy of a read operation, also column 29, line 66 through column 30, line 26).

Regarding claim 18, Reed discloses the invention as defined in claim 17 further comprising a computation unit for indicating for a pixel that is not within said portion of said color space which chrominance portion is to be indicated based on at least a value of one of said chrominance portions of said pixel (Fig. 8, column 17, lines 10-21, refer to gain controller).

Regarding claim 19, Reed discloses the invention as defined in claim 17 wherein said chrominance portion is better suited to be altered when altering said chrominance portion will produce less, if any, visible artifact than altering any other chrominance portion of said pixel (column 10, lines 35-46, reduce visibility of artifact).

With regard to claims 14, 15 and 20, the arguments analogous to those presented above for claims 1, 2, 8 and 16 are respectively applicable to claims 14, 15 and 20.

With regard to claims 21, 22, 23 and 24, the arguments analogous to those presented above for claims 1, 4, 17 and 19 are respectively applicable to claims 21, 22, 23 and 24.

Other prior art cited

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(U.S. patent 6,829,301) to Tinker et al is cited for enhanced MPEG information distribution apparatus and method.

(U.S. patent 7,154,638) to Lapstun et al is cited for printed page tag encoder.

(U.S. patent 7,006,656) to Fridrich et al is cited for lossless embedding of data in digital objects.

(U.S. patent 6,373,960) to Conover et al is cited for embedding watermarks into compressed video data.

(U.S. patent 6,298,166) to Ratnakar et al is cited for image transformations in the compressed domain.

Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (571) 272-7443. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.

Status information about the PAIR system, see [http:// pair-direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seyed Azarian
Patent Examiner
Group Art Unit 2624
February 5, 2007

A handwritten signature in cursive script, reading "Seyed Azarian".